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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,283	01/30/2004	Eiichi Ono	248317US0	4282

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EXAMINER	
BROADHEAD, BRIAN J	

ART UNIT	PAPER NUMBER
3661	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/767,283	ONO, EIICHI	
	Examiner	Art Unit	
	Brian J. Broadhead	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *7,9,10,12,13,20,22,23 and 25-28* is/are allowed.

6)☒ Claim(s) *1-6,8,11,14-19,21 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-6, 8, 11, 14-10, 21, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims now contain the limitation "for substantially uniformly maximizing the grip of each wheel". It is not clear from the specification what this means. Grip is generally given the definition of the friction between a body and the surface on which it moves. However, the specification also talks about maximizing the effective road friction on line 12, on page 13, and then minimizing the effective road friction on lines 6-7, on page 22. The second instance of minimizing the effective road friction is mentioned right after "maximizing grip". Without more disclosure these appear to contradict each other.

4. Claim1-6, 8, 11, 14-10, 21, and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims now contain the limitation "for substantially uniformly maximizing the grip of each wheel". It is not clear from the specification what this means. Grip is generally given the definition of the friction between a body and the surface on which it moves. However, the specification also talks about maximizing the effective road friction on line 12, on page 13, and then minimizing the effective road friction on lines 6-7, on page 22. The second instance of minimizing the effective road friction is mentioned right after "maximizing grip". Without more disclosure these appear to contradict each other.

5. The following prior art rejections are based on the best interpretation of the claims in view of the above rejections.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, 3, 8, 11, 14, 15, 16, 21, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Anwar, 6885931.

8. Anwar discloses calculating a physical quantity which relates to a tire force of each wheel and optimizes an effective road friction of each wheel, based on a target resultant force to be applied to a vehicle body in order to obtain vehicle body motion that a driver desires, and a constraint including as parameters a magnitude of a critical friction circle of each wheel in equations 31-34; calculating, based on the calculated physical quantity relating to the tire force of each wheel, a first control variable for controlling at least one of braking force and driving force of each wheel, or a second control variable for controlling the first control variable and a steering angle of each wheel; and controlling (A) the at least one of braking force and driving force of each wheel based on the first control variable, or controlling (A) the at least one of braking force and driving force of each wheel and (B) the steering angle of each wheel based on the first and second control variables on lines 34-36, on column 1; the constraint is represented by a formula indicating that no resultant force is generated in a direction orthogonal to a direction of the target resultant force, and a formula indicating that a moment around the center of gravity of the vehicle is equal to a desired moment and the constraint is represented by formulae, the number of which is less than that of wheels, or a linearized formula in equation 30, the constraint that no resultant force is orthogonal to a direction of the target resultant force is inherent; the magnitude of the critical friction circle of each wheel is determined based on an estimate or a virtual value of μ of each

wheel and a load of each wheel in lines 20-25, on column 8; and the steering angle is controlled to be the same for the right and left wheels in figure 1.

9. Applicant's arguments with respect to claims 1-6, 8, 11, 14-10, 21, and 24 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

10. Claims 7, 9, 10, 12, 13, 20, 22, 23, 25, 26, 27, and 28 are allowed

11. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose the target resultant force is represented by a secondary performance function including the magnitude of the critical friction circle of each wheel and the physical quantity relating to the tire force of each wheel; the effective road friction of each wheel, the calculated direction of the tire force of each wheel, and the magnitude of the critical friction circle of each wheel are used to calculate a slip angle based on a brush model, and the calculated slip angle is used to calculate the second control variable based on a vehicle motion model; the direction of the tire force which optimizes the effective road friction of each wheel is one of a direction of the tire force which uniformly minimizes the effective road friction of each wheel, a direction of the tire force which makes the effective road friction of a front wheel differ from that of a rear wheel, and a direction of the tire force which makes a magnitude of the tire force of each wheel proportional to the load of the wheel.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Broadhead whose telephone number is 571-272-6957. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

THOMAS G. BLACK
SUPERVISORY PATENT EXAMINER
GROUP 3600